CLAIMS

1. A urethane composition comprising: (A) at least one compound containing at least one isocyanate group; and (B) a carbinol-functional silicone resin comprising the units:

$(R^1{}_3SiO_{1/2})_a$ (i)

$(R^2{}_2SiO_{2/2})_b$ (ii)

$(R^3SiO_{3/2})_c$ (iii) and

$(SiO_{4/2})_d$ (iv)

wherein R^1 and R^2 are each independently a hydrogen atom, an alkyl group having from 1 to 8 carbon atoms, an aryl group, a carbinol group free of aryl groups having at least 3 carbon atoms, or an aryl-containing carbinol group having at least 6 carbon atoms, R^3 is an alkyl group having from 1 to 8 carbon atoms or an aryl group, a has a value of less than or equal to 0.6, b has a value of zero or greater than zero, c has a value of greater than zero, d has a value of less than 0.5, and the value of $a + b + c + d = 1$, and with the proviso that when each R^2 is methyl the value of b is less than 0.3; where the mole ratio of carbinol groups to isocyanate groups is from about 0.8:1 to 1.2:1.

2. A urethane composition comprising: (A) 100 weight parts of at least one compound containing at least one isocyanate group; (B) 3-300 weight parts of a carbinol-functional silicone resin comprising the units:

$(R^1{}_3SiO_{1/2})_a$ (i)

$(R^2{}_2SiO_{2/2})_b$ (ii)

$(R^3SiO_{3/2})_c$ (iii) and

$(SiO_{4/2})_d$ (iv)

wherein R^1 and R^2 are each independently a hydrogen atom, an alkyl group having from 1 to 8 carbon atoms, an aryl group, a carbinol group free of aryl groups having at least 3 carbon atoms, or an aryl-containing carbinol group having at least 6 carbon atoms, R^3 is an alkyl group having from 1 to 8 carbon atoms or an aryl group, a has a value of less than or equal to 0.6, b has a value of zero or greater than zero, c has a value of greater than zero, d has a value

of less than 0.5, and the value of a + b + c + d = 1, and with the proviso that when each R^2 is methyl the value of b is less than 0.3; (C) up to 250 weight parts of an organic polyol; and (D) up to 10 weight parts of a cure rate modifier.

3. A urethane composition comprising: (A) 100 weight parts of at least one compound containing at least one isocyanate group; (B) 0.3-300 weight parts of a carbinol-functional silicone resin comprising the units:

$(R^1{}_3SiO_{1/2})_a$ (i)

$(R^2{}_2SiO_{2/2})_b$ (ii)

$(R^3SiO_{3/2})_c$ (iii) and

$(SiO_{4/2})_d$ (iv)

wherein R^1 and R^2 are each independently a hydrogen atom, an alkyl group having from 1 to 8 carbon atoms, an aryl group, a carbinol group free of aryl groups having at least 3 carbon atoms, or an aryl-containing carbinol group having at least 6 carbon atoms, R^3 is an alkyl group having from 1 to 8 carbon atoms or an aryl group, a has a value of less than or equal to 0.6, b has a value of zero or greater than zero, c has a value of greater than zero, d has a value of less than 0.5, and the value of a + b + c + d = 1, with the proviso that when each R^2 is methyl the value of b is less than 0.3 and with the proviso there is on average at least one carbinol group per resin molecule; (C) up to 250 weight parts of an organic polyol; and (D) up to 10 weight parts of a cure rate modifier, where the mole ratio of carbinol groups to isocyanate groups is from about 0.8:1 to 1.2:1.

4 A urethane composition obtained by a method comprising reacting (A) at least one compound containing at least one isocyanate group; and (B) a carbinol-functional silicone resin comprising the units:

$(R^1{}_3SiO_{1/2})_a$ (i)

$(R^2{}_2SiO_{2/2})_b$ (ii)

$(R^3SiO_{3/2})_c$ (iii) and

$(SiO_{4/2})_d$ (iv)

wherein R^1 and R^2 are each independently a hydrogen atom, an alkyl group having from 1 to 8 carbon atoms, an aryl group, a carbinol group free of aryl groups having at least 3 carbon atoms, or an aryl-containing carbinol group having at least 6 carbon atoms, R^3 is an alkyl group having from 1 to 8 carbon atoms or an aryl group, a has a value of less than or equal to 0.6, b has a value of zero or greater than zero, c has a value of greater than zero, d has a value of less than 0.5, and the value of a + b + c + d = 1, and with the proviso that when each R^2 is methyl the value of b is less than 0.3, where the mole ratio of carbinol groups to isocyanate groups is from about 0.8:1 to 1.2:1.

5. A urethane composition obtained by a method comprising reacting (A) 100 weight parts of at least one compound containing at least one isocyanate group; (B) 3-300 weight parts of a carbinol-functional silicone resin comprising the units:

$(R^1{}_3SiO_{1/2})_a$ (i)

$(R^2{}_2SiO_{2/2})_b$ (ii)

$(R^3SiO_{3/2})_c$ (iii) and

$(SiO_{4/2})_d$ (iv)

wherein R^1 and R^2 are each independently a hydrogen atom, an alkyl group having from 1 to 8 carbon atoms, an aryl group, a carbinol group free of aryl groups having at least 3 carbon atoms, or an aryl-containing carbinol group having at least 6 carbon atoms, R^3 is an alkyl group having from 1 to 8 carbon atoms or an aryl group, a has a value of less than or equal to 0.6, b has a value of zero or greater than zero, c has a value of greater than zero, d has a value of less than 0.5, and the value of a + b + c + d = 1, and with the proviso that when each R^2 is methyl the value of b is less than 0.3; (C) up to 250 weight parts of an organic polyol; and (D) up to 10 weight parts of a cure rate modifier.

6. A urethane composition obtained by a method comprising reacting (A) 100 weight parts of at least one compound containing at least one isocyanate group; (B) 0.3-300 weight parts of a carbinol-functional silicone resin comprising the units:

$(R^1{}_3SiO_{1/2})_a$ (i)

$(R^2{}_2SiO_{2/2})_b$ (ii)

$(R^3SiO_{3/2})_c$ (iii) and

$(SiO_{4/2})_d$ (iv)

wherein R^1 and R^2 are each independently a hydrogen atom, an alkyl group having from 1 to 8 carbon atoms, an aryl group, a carbinol group free of aryl groups having at least 3 carbon atoms, or an aryl-containing carbinol group having at least 6 carbon atoms, R^3 is an alkyl group having from 1 to 8 carbon atoms or an aryl group, a has a value of less than or equal to 0.6, b has a value of zero or greater than zero, c has a value of greater than zero, d has a value of less than 0.5, and the value of a + b + c + d = 1, and with the proviso that when each R^2 is methyl the value of b is less than 0.3 and with the proviso there is on average at least one carbinol group per resin molecule; (C) up to 250 weight parts of an organic polyol; and (D) up to 10 weight parts of a cure rate modifier, where the mole ratio of carbinol groups to isocyanate groups is from about 0.8:1 to 1.2:1.

7. The urethane composition according to Claim 1 or 4 further comprising (C) an organic polyol.

8. The urethane composition according to any of Claims 1, 4, or 7 further comprising (D) a cure rate modifier.

9. The urethane composition according to any of Claims 1 to 8 wherein:
the alkyl group is methyl;
the aryl group is phenyl;
the carbinol group free of aryl groups having at least 3 carbon atoms is selected from a group having the formula R^4OH wherein R^4 is selected from

(1) a group having the formula $-(CH_2)_x-$ where x has a value of 3 to 10,

(2) $-CH_2CH(CH_3)-$,

(3) $-CH_2CH(CH_3)CH_2-$,

(4) $-CH_2CH_2CH(CH_2CH_3)CH_2CH_2CH_2-$, and

(5) a group having the formula $-OCH(CH_3)(CH_2)_x-$ wherein x has a value of 1 to 10

and a group having the formula $R^6(OH)$ wherein R^6 is a group having the formula -$CH_2CH_2(CH_2)_xOCH_2CH$- wherein x in each case has a value of 1 to 10;
the aryl-containing carbinol group having at least 6 carbon atoms is a group having the formula R^5OH wherein R^5 is selected from

(1) a group having the formula -$(CH_2)_xC_6H_4$- wherein x has a value of 0 to 10,

(2) a group having the formula -$CH_2CH(CH_3)(CH_2)_xC_6H_4$- wherein x has a value of 0 to 10, and

(3) a group having the formula -$(CH_2)_xC_6H_4(CH_2)_x$- wherein x has a value of 1 to 10.

10. The urethane composition of any of claims 1 to 9 where a has a typical value of 0.1 to 0.6, b has a typical value of 0 to 0.4, c has a typical value of 0.3 to 0.8, and d has a typical value of 0 to 0.3.

11. The urethane composition according to any of Claims 1 to 8 wherein the carbinol-functional silicone resin is selected from
carbinol-functional silicone resins comprising the units:
$((CH_3)_3SiO_{1/2})_a$
$((R^2)CH_3SiO_{2/2})_b$ where $R^2 = -(CH_2)_3C_6H_4OH$
$((C_6H_5)CH_3SiO_{2/2})_b$ and
$(C_6H_5SiO_{3/2})_c$,
carbinol-functional silicone resins comprising the units:
$((R^1)(CH_3)_2SiO_{1/2})_a$ where $R^1 = -(CH_2)_3C_6H_4OH$ and
$(C_6H_5SiO_{3/2})_c$,
carbinol-functional silicone resins comprising the units:
$((R^1)(CH_3)_2SiO_{1/2})_a$ where $R^1 = -(CH_2)_3C_6H_4OH$ and
$(CH_3SiO_{3/2})_c$,
carbinol-functional silicone resins comprising the units:
$((R^1)(CH_3)_2SiO_{1/2})_a$ where $R^1 = -(CH_2)_3OH$ and

$(C_6H_5SiO_{3/2})_c$,

carbinol-functional silicone resins comprising the units:

$((R^1)(CH_3)_2SiO_{1/2})_a$ where $R^1 = -(CH_2)_3OH$

$(CH_3SiO_{3/2})_c$ and

$(C_6H_5SiO_{3/2})_c$,

carbinol-functional silicone resins comprising the units:

$((CH_3)_3SiO_{1/2})_a$

$((R^2)CH_3SiO_{2/2})_b$ where $R^2 = -(CH_2)_3OH$

$((C_6H_5)CH_3SiO_{2/2})_b$ and

$(C_6H_5SiO_{3/2})_c$,

carbinol-functional silicone resins comprising the units:

$((CH_3)_3SiO_{1/2})_a$

$((R^1)(CH_3)_2SiO_{1/2})_a$ where $R^1 = -(CH_2)_3OH$ and

$(C_6H_5SiO_{3/2})_c$,

carbinol-functional silicone resins comprising the units:

$((R^1)(CH_3)_2SiO_{1/2})_a$ where $R^1 = -CH_2CH(CH_3)CH_2OH$

$((H)(CH_3)_2SiO_{1/2})_a$ and

$(C_6H_5SiO_{3/2})_c$,

carbinol-functional silicone resins comprising the units:

$((R^1)(CH_3)_2SiO_{1/2})_a$ where $R^1 = -(CH_2)_3OH$

$(CH_3SiO_{3/2})_c$

wherein a has a typical value of 0.1 to 0.6, b has a typical value of zero to 0.4, and c has a typical value of 0.3 to 0.8.

12. The urethane composition according to any of Claims 1 to 11, wherein greater than 10 weight percent of the $R^1+R^2+R^3$ groups are phenyl.

13. The urethane composition according to any of Claims 1 to 12 wherein the urethane composition further comprises at least one ingredient selected from fillers, solvents,

plasticizers, pigments, colorants, dyes, surfactants, thickeners, heat stabilizers, leveling agents, anti-cratering agents, fillers, sedimentation inhibitors, ultraviolet-light absorbers, promoters, heat stabilizers, ultraviolet-light absorbers, and antioxidants.

14. The urethane composition according to any of Claims 1 to 13 wherein the urethane compositions further comprise at least one cell stabilizer and at least one blowing agent, and optionally chain extenders and crosslinkers.

15. The urethane composition according to Claim 14, wherein the cell stabilizer is a silicone polyether and the blowing agent is selected from water, liquid carbon dioxide, CFCs, HCFCs, HFCs, and pentane.